AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 10, as follows:

The technical field of the present ~~invention~~ disclosure relates to an information processing apparatus that is provided with means for storing information to be processed and is capable of operating means for invalidating the information.

Please amend the paragraph beginning at page 2, line 10, as follows:

To the printers as described above, ~~a lot of~~ many PCs ~~are~~ can be connected through the communication network, so that a plurality of users can provide an image output instruction. For this reason, there is a possibility that the images outputted onto recording sheets on instructions from a plurality of users are mixed together in the image discharge part and carried away by a wrong user by mistake. Therefore, a technology has been developed such that when receiving an image output job transmitted from a PC, the printer stores the job and waits without performing the image output and after the user inputs an output instruction by directly operating the printer, the printer outputs the image. Japanese Patent Application Laid-Open No. 60-25385 discloses a technology such that a password is transmitted together with image data from a PC to the printer, the printer stores the image data and waits, and in case that the user inputs the correct password by directly operating the printer, the printer outputs the image. Moreover, among such printers,

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products have been developed that have a function to back up information associated with the processing on standby in order that even when the power is turned off while the processing is on standby, the image output can be performed after the power is turned on again.

Please amend the paragraphs beginning at page 3, line 21 through page 7, line 11, as follows:

SUMMARY ~~DISCLOSURE OF INVENTION~~

~~The present invention is made in view of such circumstances, and an object thereof~~ It is desirable to provide an information processing apparatus capable of maintaining the confidentiality of the information to be processed, by limiting the function to back up the stored information.

An illustrative non-limiting information processing apparatus ~~according to the present invention is characterized in that in an information processing apparatus provided with:~~ includes storing means for storing unprocessed information; and resuming means for resuming, in case that information processing is temporarily stopped and resumed, the information processing under a condition where the unprocessed information is stored in the storing means, ~~the following are provided:~~ invalidating means for invalidating information; means for making the invalidating means operable so that after the information is processed, the invalidating means invalidates the processed information; and limiting means for limiting, in case that the invalidating

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means is operable, the operation of the resuming means and resuming the

information processing under a condition where part or all of the unprocessed

information is deleted from the storing means.

An illustrative non-limiting information processing apparatus ~~according~~

~~to the present invention is characterized in that in an information processing~~

~~apparatus provided with:~~ includes storing means for storing unprocessed

information; and resuming means for resuming, in case that information

processing is temporarily stopped and resumed, the information processing

under a condition where the unprocessed information is stored in the storing

means, ~~the following are provided:~~ means for additionally making operable

invalidating means for invalidating, after information is processed, the

processed information; and limiting means for limiting, in case that the

invalidating means is operable, the operation of the resuming means and

resuming the information processing under a condition where part or all of the

unprocessed information is deleted from the storing means.

An illustrative non-limiting embodiment of ~~information processing~~

~~apparatus according to the present invention is characterized in that~~ the

resuming means ~~is provided with~~ includes means for maintaining a condition

where the storing means stores the unprocessed information while the

information processing is stopped.

~~An information processing apparatus according to the present invention~~

~~is characterized in that~~ In a non-limiting illustrative example, the unprocessed

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information comprises data to be processed and associated information associated with the data, ~~that.~~ Also, a non-limiting illustrative embodiment of the storing means ~~is provided with:~~ includes first storing means for storing the data to be processed; and second storing means for storing the associated information including information necessary for reading out the data to be processed from the first storing means, and ~~that~~ an illustrative non-limiting embodiment of the limiting means ~~is~~ can be structured so as to resume the information processing under a condition where the associated information is deleted from the second storing means.

An ~~information processing apparatus according to the present invention is characterized in that~~ illustrative non-limiting embodiment of the second storing means ~~is~~ can be structured so as to store the data to be processed, in a condition of being encrypted.

According to ~~the present invention~~ a non-limiting illustrative aspect of the disclosure, in an information processing apparatus provided with: storing means for storing unprocessed information; and resuming means for resuming, in case that the apparatus is turned off and resumed such as in case that the power is shut off and turned on again, the information processing under a condition where the unprocessed information is stored in the storing means, in case that invalidating means for invalidating the processed information is operable, the operation of the resuming means is limited, part or all of the unprocessed information is deleted and the information processing is resumed.

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The invalidating means is made operable by switching between operating state and non-operating state by setting or is made operable by being additionally provided. By resuming the processing under a condition where part or all of the unprocessed information is deleted, the information associated with the processing is prevented from continuing being stored in a condition where it can be taken out to the outside, thereby maintaining the confidentiality of the information to be processed.

~~Moreover, according to the present invention,~~ An illustrative non-limiting embodiment of the resuming means ~~maintains~~ can maintain the unprocessed information so as not to be lost even while the power is shut off, for example, by using a backup power source. The information that the process waits to perform can be processed even after the restart, so that convenience is maintained.

~~Moreover, according to the present invention~~ In a non-limiting illustrative aspect, data to be processed such as image data, and associated information including information necessary for reading out data such as an address where the data is stored are stored in the storing means, and in case that the invalidating means is operating, the processing is resumed under a condition where the associated information is deleted. The associated information is lost after the restart, so that it is difficult to read out the data. This prevents the information associated with the processing from continuing being stored in a

condition where it can be taken out to the outside, thereby maintaining the confidentiality of the information to be processed.

~~Further, according to the present invention~~In another non-limiting illustrative aspect, by storing the data to be processed in a condition of being encrypted, it is made difficult to take out data such as image data to the outside for use in case that the invalidating means is not operating and it is facilitated to maintain the confidentiality of the information.

Please amend the paragraphs beginning at page 7, line 18 through page 8, line 7, as follows:

FIG. 1 is a block diagram showing ~~the~~ an internal structure of an illustrative non-limiting embodiment of a printer ~~which is~~ as an example information processing apparatus ~~of the present invention~~,

FIG. 2 is a schematic view showing ~~the~~ an illustrative non-limiting processing performed by the printer in case that an image is outputted,

FIG. 3 is a conceptual diagram showing an illustrative non-limiting example of the contents of a job management table stored in a ~~storage~~ management part, and

FIG. 4 is a flowchart showing ~~the~~ illustrative non-limiting procedures of the operation for the printer~~, which is an information processing apparatus of the present invention~~ to turn off the main power.

DETAILED DESCRIPTION BEST MODE FOR CARRYING OUT THE
INVENTION

Hereinafter, the present invention will be concretely described based on
the drawings showing an embodiment thereof.

FIG. 1 is a block diagram showing the internal structure of a non-
limiting illustrative embodiment of a printer, which is as an example
information processing apparatus of the present invention. The printer 1 is an
information processing apparatus of the present invention, and is provided
with a control part 101 comprising a CPU that performs computations and a
RAM that stores temporary information involved in the computations. To the
control part 101, a ROM 109 is connected that stores a control program for
controlling the printer 1, and the control part 101 controls the entire printer 1
in accordance with the control program stored in the ROM 109. Moreover, to
the control part 101, a management part 104 is connected that is a memory
storing management information for managing the processing performed by the
printer 1, and the control part 101 refers to the management information
stored in the management part 104 and controls the printer 1 based the
information being referred to. Moreover, to the control part 101, the following
are connected: an image reading part 107 that reads an image recorded on a
sheet by scanning it and generates electronic image data based on the image
being read out; and an image forming part 108 that forms an image from the
image data, records the formed image onto a recording sheet and outputs the

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image, and the printer 1 functions as a copier that copies the image read out

by the image reading part 107. Moreover, to the control part 101, a storage part

106 is connected that comprises a hard disk or a nonvolatile memory. The

storage part 106 is the first storing means according to the present invention,

and the management part 104 is the second storing means according to the

present invention. The storage part 106 stores the image data representative of

the contents of the outputted image which is the data to be processed, and the

management part 104 stores a job management table in which job information

~~which is the associated information according to the present invention~~

associated with the image data such as the number of copies of the outputted

image is summarized. Moreover, to the control part 101, an operation part 102

is connected that accepts operations from the user, and the operation part 102

~~comprises:~~ can include display means such as a liquid crystal panel for

displaying information necessary for the operations; and input means such as

a touch panel or a numeric keypad to which information such as a control

instruction is inputted by the user's operation.

***Please amend the paragraphs beginning at page 11, line 7 through page
12, line 1, as follows:***

FIG. 2 is a schematic view showing ~~the~~ a non-limiting illustrative

processing performed by the printer 1 ~~in case that~~ when an image is outputted.

In case that outputting an image on an instruction from the external PC 2, the

printer 1 receives image data and job information from the PC 2 by the

communication part 103 through the communication network N1. In the

figure, flows of the image data are indicated by thick arrows, and flows of the

job information are indicated by thin arrows. Moreover, the image read by the

image reading part 107 is outputted, the image data is accepted from the image

reading part 107, and the job information is accepted from the operation part

102. The control part 101 stores the accepted job information in the

management part 104 as in a job management table in which the job

information is summarized by being assigned a management number in the

order of acceptance. Moreover, the control part 101 encrypts the accepted

image data in accordance with the control program stored in the ROM 109,

stores the encrypted image data into the storage part 106, and information on

the storage area representative of where in the storage part 106 the image data

is stored is added to the job management table.

FIG. 3 is a conceptual diagram showing an illustrative non-limiting

example of the contents of the job management table stored in the storage part

105 management part 104. The job information accepted by the printer 1

includes information such as the date of acceptance, the requester

representative of the PC 2 which is the transmitter of the job information, the

image size, the number of sheets of the image in case that the image is

outputted onto recording sheets and the number of copies, and is recorded in a

condition of being assigned a management number in the order of acceptance.

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Moreover, the storage area of the image data associated with each job information is recorded, so that the image data to be outputted as an image can be referred to. Further, for each job information, a normal mode or a confidential mode is set as an image output mode. The confidential mode is a mode in which the job information including a password is transmitted from the PC 2 and in case that the same password is accepted by the operation part 102, the image is outputted, and the password received from the PC 2 is recorded. In case that storing the job management table into the ~~storage part 105~~ management part 104, the control part 101 assigns a processing number to the job information while giving higher priority to the job information for which the normal mode is set.

Please amend the paragraph beginning at page 13, line 23, as follows:

Various functions of the printer 1 as described above are controlled by the control part 101 in accordance with the control program stored in the ROM 109, and in the printer 1 ~~which is an information processing apparatus of the present invention~~, the control part 101 is capable of performing control in accordance with a security program for improving security in addition to the control program. By replacing the ROM not storing the security program with a ROM 109 storing the security program or by accepting by the operation part 102 an instruction to execute the security program stored in the ROM 109, the control part 101 can control the printer 1 in accordance with the security

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program stored in the ROM 109. The control part 101 ~~operates~~ can operate as

the invalidating means ~~according to the present invention~~ by following the

security program stored in the ROM 109, and deletes the image data stored in

the storage part 106 or performs a processing such as overwriting the image

data with predetermined information to thereby invalidate the already-

processed image data stored in the storage part 106 so as to be unusable.

Moreover, since there are cases where even if the image data is deleted, the

image data can be restored because of the magnetism remaining in the storage

part 106, setting can be made so that the image data is deleted a plurality of

times, for example, by overwriting it with random data.

***Please amend the paragraphs beginning at page 15, line 12 through
page 20, line 10, as follows:***

Further, ~~in the present invention,~~ in case that controlling the printer 1 in

accordance with the security program, the control part 101 inhibits the backup

part 105 from supplying power to the management part 104 in accordance with

the control program, and restarts the printer 1 under a condition where the job

management table is deleted from the management part 104.

FIG. 4 is a flowchart showing ~~the~~ illustrative non-limiting procedures of

the operation for the printer 1 ~~which is an information processing apparatus of~~

~~the present invention~~ to turn off the main power 110. In the printer 1, an

instruction for turning off the main power 110 is accepted by the operation

part 102 (S1), and the control part 101 checks the management information

stored in the management part 104 in accordance with the control program

and the security program stored in the ROM 109 (S2) and determines whether

or not the contents of the management information represent that the printer 1

is in a condition where the security program executes (S3). In case that the

contents of the management information represent that the printer 1 is in a

condition where the security program executes (S3: YES), the control part 101

inhibits the operation of the backup part 105 and turns off the main power 110

in accordance with the control program and the security program stored in the

ROM 109 (S4). In this case, since no power is supplied from the backup part

105 to the management part 104 and the main power 110 is turned off, the job

management table stored in the management part 104 which is a memory is

deleted. In case that the main power 110 is turned on again, since the job

management table including the information on the storage area of the image

data stored in the storage part 106 is deleted, the access to the image data is

difficult. In case that the contents of the management information do not

represent that the printer 1 is in a condition where the security program

executes at step S3 (S3: NO), the control part 101 operates the backup part

105 and turns off the main power 110 in accordance with the control program

and the security program stored in the ROM 109 (S5). In this case, since the

job management table is held, the stored image data can be processed after the

restart of the printer 1.

As described above in detail, in the printer 1 which is an information

processing apparatus of the present invention, after a password is accepted

from the PC 2 together with the image data and the job information, the image

data is encrypted and stored in the storage part 106, the job information is

associated with the password and stored in the management part 104 as a in

the job management table, the process waits, and in case that the security

program is executable, the operation of the backup part 105 to supply power to

the management part 104 is inhibited in case that the main power 110 is

turned off, thereby deleting the job information table stored in the management

part 104. In case that the printer 1 is restarted, since the job management

table including the information on the storage area necessary for reading out

the image data is deleted, it is difficult to read out the image data stored in the

storage part 106. Consequently, in case that unprocessed image data is stored

in the printer 1 such as in case that the user who transmitted the image data

from the PC 2 to the printer 1 forgot to output the image, the image data is

prevented from continuing being stored in a condition where it can be taken

out to the outside even after the power is turned off and the printer 1 is

restarted, so that the confidentiality of the information to be processed can be

maintained. Moreover, in case that the security program does not execute such

as when the printer 1 is used for purposes not requiring that confidentiality be

maintained, the job management table stored in the management part 104 is

protected by the backup part so that the image output is enabled even after the

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restart, thereby maintaining convenience. Further, since the storage part 106

stores the image data in a condition of being encrypted, even when the security

program does not execute, it is difficult to take out the image data to the

outside for use, and it is facilitated to maintain the confidentiality of the

information.

While in the present embodiment, a method is used in which the job

management table is protected by supplying power from the backup part 105

to the management part 104, the present invention is not limited thereto; a

non-limiting illustrative method may be used in which the job management

table is protected by storing the job management table in another nonvolatile

storing means. Moreover, at this time, a non-limiting illustrative method may

be used in which the kind of the job information included in the job

management table is determined and job information to be protected is selected

based on the kind of the job information such as determining whether the job

information is job information of normal output or job information of

confidential output with reference to the contents of the job information,

storing only the job information of normal output in the nonvolatile storing

means and protecting it. Moreover, as the a non-limiting illustrative method of

deleting the job management table, a method may be used in which the job

management table is forcibly deleted in case that the main power 110 is turned

off or at the time of restart. Further, while in the present embodiment, a

method in which only the job management table is deleted is shown described,

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the present invention is not limited thereto; a non-limiting illustrative method may be used in which the image data itself is deleted in addition of the job management table by the turning off of the power. In this case, the confidentiality of the information to be processed can be more reliably maintained.

~~INDUSTRIAL APPLICABILITY~~

As described above in detail, ~~according to the present invention,~~ in an information processing apparatus provided with: storing means for storing unprocessed information; and resuming means for resuming, in case that processing is resumed such as when the power is shut off and turned on again, the information processing under a condition where the unprocessed information is stored in the storing means, in case that invalidating means for invalidating the processed information is operable, the operation of the resuming means is limited, part or all of the unprocessed information is deleted and the information processing is resumed. By resuming the processing under a condition where part or all of the unprocessed information is deleted, the information associated with the processing is prevented from continuing being stored in a condition where it can be taken out to the outside, thereby maintaining the confidentiality of the information to be processed.

Moreover, ~~according to the present invention,~~ the resuming means ~~maintains~~ can maintain the unprocessed information so as not to be lost even while the power is shut off to thereby enable the performance of the processing

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of the information that the process waits to perform, so that convenience is maintained.

Moreover, ~~according to the present invention,~~ data to be processed such as image data, and associated information including information necessary for reading out data such as an address where the data is stored are stored in the storing means, and in case that the invalidating means is operating, the processing is resumed under a condition where the associated information is deleted. The associated information is lost after the restart, so that it is difficult to read out the data. This prevents the information associated with the processing from continuing being stored in a condition where it can be taken out to the outside, thereby maintaining the confidentiality of the information to be processed.

Further, ~~according to the present invention,~~ by storing the data to be processed in a condition of being encrypted, it is made difficult to take out data such as image data to the outside for use in case that the invalidating means is not operating and it is facilitated to maintain the confidentiality of the information. ~~Thus, the present invention produces excellent effects.~~